



MARK A. YOUNG  
EXECUTIVE DIRECTOR

# LOWELL REGIONAL WASTEWATER UTILITY

WASTEWATER COLLECTION AND TREATMENT



SERVING LOWELL  
CHELMSFORD  
DRACUT  
TEWKSBURY  
TYNGSBORO

April 15, 2021

**RE: MA0100633**

To Whom It May Concern:

The following is an itemization of status and improvements for the Lowell Regional Wastewater Utility during March 2021. Enclosed is a copy of the Discharge Monitoring Report, the required NPDES permit monitoring data, a summary of CSO discharges, and a summary of high flow bypasses for this period.

The Discharge Monitoring Report is being submitted electronically through the Environmental Protection Agency NetDMR website and also via email to the Massachusetts Department of Environmental Protection.

***PERMIT EXCEEDANCES:***

- There were no permit exceedances for the month of March 2021.
- There is no recorded pH grab sample for Sunday March 14<sup>th</sup>. The temporary Head Operator on duty had neglected to collect and test the sample. The continuous monitoring pH meter reported a maximum pH of 7.2 and minimum pH of 7.1 for the day. Since the incident, the Utility has further trained the operational staff on the NPDES permit sampling and testing requirements.

***PROCESS CHANGES AND IMPROVEMENTS:***

- The primary and secondary clarifier Phase 2B construction upgrades are complete. The Phase 2B construction is no longer limiting flow through the facility and impacting wet weather flow capacity.
- Anoxic periods in the last cell of the aeration trains were disabled on 11/10 for the winter season. With the seasonal process change it is no longer necessary for NO<sub>3</sub> control.
- As of 11/12 all aeration tanks are online. All aeration tanks are needed for biological inventory and sludge management in the colder weather.
- The RAS was chlorinated 3/9 through 3/16. This was done to control sludge bulking due to filamentous growth.
  - After RAS chlorination there was a decrease in SVI and filamentous sludge bulking.
- The RAS, WAS, and Plant Water Pumps electric VFDs are being upgraded as part of the phase 2B construction project. This upgrade will help ensure that the facility pumping systems are both stable and reliable.

- Drive replacements started on 2/25 and all new pump drives were installed and operational by March 4<sup>th</sup>.
- The sodium bisulfite feed system is being upgraded as part of the Phase 2B construction project.
  - The old bisulfite feed system is being used until issues with the new feed system are resolved.
- The Utility has begun to test an automated secondary bypass chlorination system. The system will dose chlorine into the bypass line during a secondary bypass. This will allow for additional chlorine contact time for bypassed flow.

***ODOR COMPLAINTS:***

- There was an odor complaint reported on March 24<sup>th</sup>.

Respectfully,

A handwritten signature in black ink, appearing to read 'Aaron Fox', with a stylized flourish at the end.

Aaron Fox, Operations Manager  
Lowell Regional Wastewater Utility  
First St. Blvd. (Rt. 110)  
Lowell MA 01850

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: LOWELL REGIONAL VWW UTILITY  
ADDRESS: 451 FIRST ST BLVD  
LOWELL, MA 01850  
FACILITY: LOWELL REGIONAL VWW UTILITY  
LOCATION: 451 FIRST ST BLVD  
LOWELL, MA 01850

ATTN: AARON FOX, OPERATIONS MANAGER


DISCHARGE MONITORING REPORT (DMR)

MA0100633  
PERMIT NUMBER  
035-A  
DISCHARGE NUMBER  
DMR MAILING ZIP CODE: 01850  
MAJOR \$  
(SUBR E)  
TREATED EFFLUENT  
External Outfall

MONITORING PERIOD  
MM/DD/YYYY TO MM/DD/YYYY  
03/01/2021 TO 03/31/2021

NO DISCHARGE

PARAMETER		QUANTITY OR LOADING					QUALITY OR CONCENTRATION					NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE 1	VALUE 2	VALUE 3	UNITS		VALUE 1	VALUE 2	VALUE 3	UNITS				
pH	SAMPLE MEASUREMENT	*****	*****	*****	*****		6.8	*****	7.2	SU	0	01/01	GR	
	PERMIT REQUIREMENT	*****	*****	*****	*****		6.0	*****	8.3	SU		Daily	GRAB	
Solids, total suspended		1,448	2,585	5,644	lb/d		6.0	10.82	19.6	mg/L	0	05/07	24	
00530 1 0 Effluent Gross	SAMPLE MEASUREMENT	8,006	12,010	Req. Mon. DAILY MX	lb/d		30	45	Req. Mon. DAILY MAX	mg/L		Weekdays	COMP24	
	PERMIT REQUIREMENT	*****	*****	*****	*****		157.5	*****	*****	mg/L	0	05/07	24	
00530 G 0 Raw Sewage Influent	SAMPLE MEASUREMENT	*****	*****	*****	*****		96.8	*****	*****	%	0	01/30	CA	
	PERMIT REQUIREMENT	*****	*****	*****	*****		85	*****	*****	%		Monthly	CALC	
TSS % Removal														
Total Nitrogen	SAMPLE MEASUREMENT	*****	*****	*****	*****		17.51	*****	*****	mg/L	0	01/30	CA	
	PERMIT REQUIREMENT	*****	*****	*****	*****		Req. Mon. MO AVG	*****	*****	mg/L		Monthly	CALC	
TKN	SAMPLE MEASUREMENT	*****	*****	*****	*****		17.28	*****	*****	mg/L	0	01/30	24	
	PERMIT REQUIREMENT	*****	*****	*****	*****		Req. Mon. MO AVG	*****	*****	mg/L		Monthly	COMP24	
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****		0.23	*****	*****	mg/L	0	01/30	24	
	PERMIT REQUIREMENT	*****	*****	*****	*****		Req. Mon. MO AVG	*****	*****	mg/L		Monthly	COMP24	
Phosphorus, total (as P)		*****	*****	*****	*****		0.32	*****	0.32	mg/L	0	01/30	24	
00665 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****		Req. Mon. MO AVG	*****	Req. Mon. DAILY MX	mg/L		Monthly	COMP24	
	PERMIT REQUIREMENT	*****	*****	*****	*****		Req. Mon. MO AVG	*****	*****	mg/L		Monthly	COMP24	

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	<div>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</div>			TELEPHONE		DATE
AARON FOX				978 674-4248		04/13/2021
OPERATIONS MANAGER				AREA CODE	NUMBER	
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT					MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: LOWELL REGIONAL WW UTILITY  
ADDRESS: 451 FIRST ST BLVD  
LOWELL, MA 01850  
FACILITY: LOWELL REGIONAL WW UTILITY  
LOCATION: 451 FIRST ST BLVD  
LOWELL, MA 01850  
ATTN: AARON FOX, OPERATIONS MANAGER


DISCHARGE MONITORING REPORT (DMR)

MA0100633  
PERMIT NUMBER  
035-A  
DISCHARGE NUMBER  
DMR MAILING ZIP CODE: 01850  
MAJOR \$  
(SUBR E)  
TREATED EFFLUENT  
External Outfall

NO DISCHARGE

MONITORING PERIOD  
MM/DD/YYYY TO MM/DD/YYYY  
03/01/2021 TO 03/31/2021

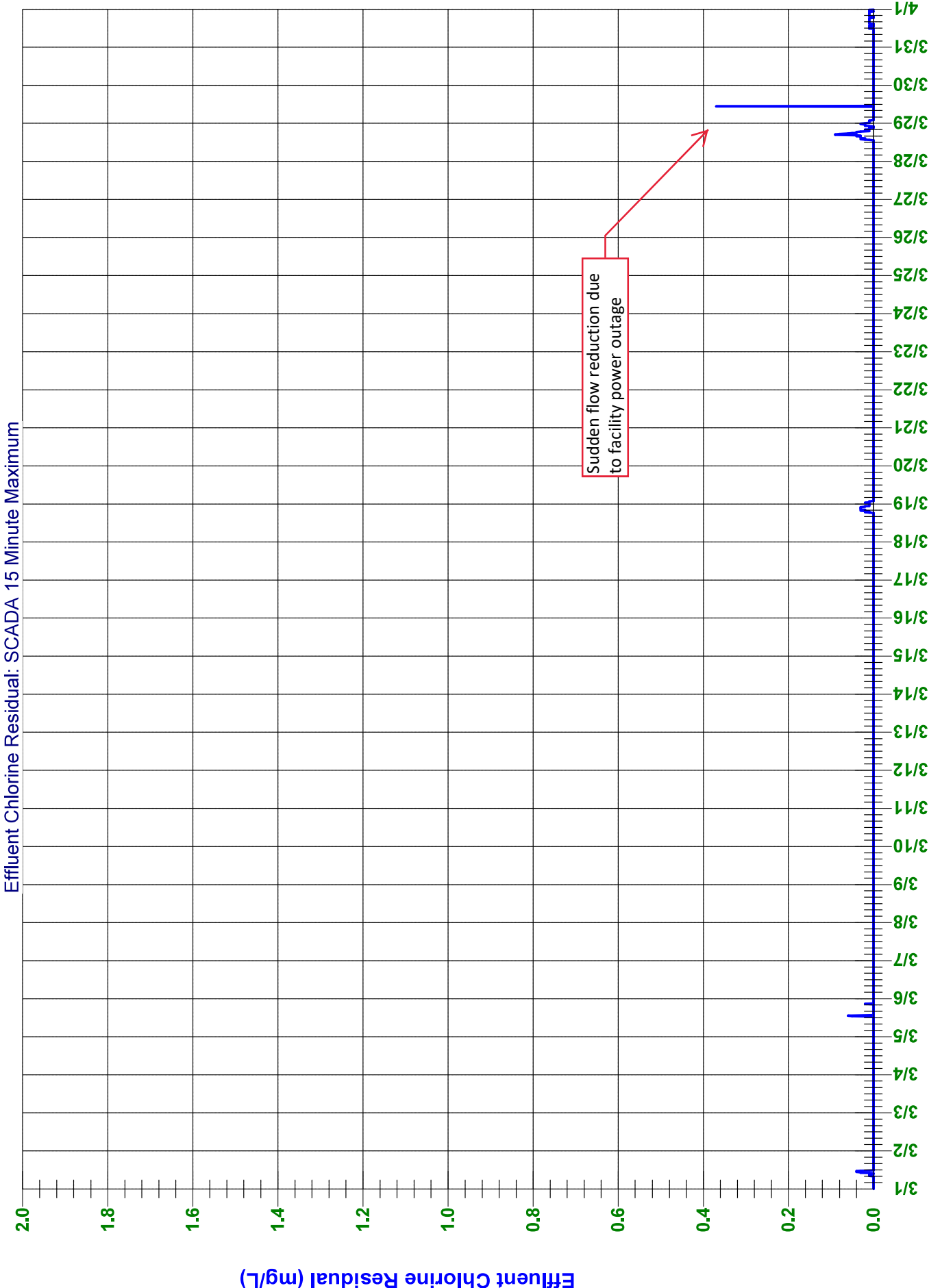
PARAMETER	QUANTITY OR LOADING			QUANTITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE 1	VALUE 2	VALUE 3	UNITS	VALUE 1	VALUE 2	VALUE 3	UNITS	
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	25.20	27.56	34.53	MGD	*****	*****	*****	RC
	PERMIT REQUIREMENT	32 12MO AVG	Req. Mon. MO AVG	DAILY MX	*****	*****	*****	*****	
Chlorine, total residual	SAMPLE MEASUREMENT	*****	*****	*****	*****	67.10	260	µg/L	RC
	PERMIT REQUIREMENT	*****	*****	*****	*****	196 MO AVG	338 DAILY MX	µg/L	
Chlorine, total residual	SAMPLE MEASUREMENT	*****	*****	*****	*****	20.00	370	µg/L	RC
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. MO AVG	Req. Mon. DAILY MX	µg/L	
Ecoli	SAMPLE MEASUREMENT	*****	*****	*****	*****	9.02	31	MPN	GR
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 MO GEO	409 DAILY MX	MPN	
BOD, carbonaceous, 05 day, 20C	SAMPLE MEASUREMENT	1,419	2,470	4,405	lb/d	6.0	15.3	mg/L	24
	PERMIT REQUIREMENT	6,672 MO AVG	10,675 WKLY AVG	Req. Mon. DAILY MX	lb/d	25 MO AVG	Req. Mon. DAILY MX	mg/L	
BOD, carbonaceous, 05 day, 20C	SAMPLE MEASUREMENT	*****	*****	*****	*****	125.7	*****	mg/L	24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. MO AVG	*****	mg/L	
BOD % Removal	SAMPLE MEASUREMENT	*****	*****	*****	*****	95.8	*****	%	CA
	PERMIT REQUIREMENT	*****	*****	*****	*****	85 MINIMUM	*****	%	

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.			TELEPHONE	DATE
	AARON FOX		978 674-4248		
OPERATIONS MANAGER	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE	NUMBER	MM/DD/YYYY
TYPED OR PRINTED					

Date	Weather	Plant Effluent Flow			D.O.	Chlorine Residual		Chlorine Residual Continuous Recording		Plant Effluent pH			E-coli	Effluent CBOD				Effluent TSS			
		Total (MG)	Max. Hourly (MGD)	Min. Hourly (MGD)		Grab (mg/L)	Grab (mg/L)	Avg. (mg/L)	Max. (mg/L)	Min.	Max.	Grab		(mg/L)	(lbs)	(% Rem)	(mg/L)	(lbs)	(% Rem)	(lbs)	(% Rem)
01-Mon	Wet	34.05	40.75	24.08	8.3	0.05	0.00	0.00	0.04	6.6	6.7	7.0	11	4.8	1,363.0		5.2	1,476.6			
02-Tue	Dry	28.21	32.29	21.25	8.5	0.03	0.00	0.00	0.00	6.6	6.7	7.0	25	3.8	893.9	96.49	3.8	893.9	96.49	893.9	97.1
03-Wed	Dry	28.45	33.07	20.77	8.1	0.05	0.00	0.00	0.00	6.6	6.7	7.1	8	4.1	972.9	96.62	3.4	806.8	96.62	806.8	97.6
04-Thu	Dry	28.02	31.91	21.00	8.4	0.02	0.00	0.00	0.00	6.6	6.7	7.0	5	4.0	934.7	96.79	3.2	747.7	96.79	747.7	97.7
05-Fri	Dry	26.87	30.46	19.83	8.3	0.26	0.00	0.00	0.06	6.6	6.7	7.0	2								
06-Sat	Dry	26.38	32.32	19.05	8.4	0.01	0.00	0.00	0.00	6.6	6.7	7.0									
07-Sun	Dry	26.41	32.52	18.31	8.2	0.01	0.00	0.00	0.00	6.6	6.7	7.1		3.6	792.8	97.38	3.8	836.9	97.38	836.9	98.5
08-Mon	Dry	25.99	30.32	18.33	8.3	0.11	0.00	0.00	0.00	6.6	6.7	7.0	5	5.0	1,083.9	96.63	3.4	737.0	96.63	737.0	98.3
09-Tue	Dry	26.68	31.78	19.27	8.3	0.00	0.00	0.00	0.00	6.6	6.7	7.0	10	4.0	890.2	97.47	3.8	845.7	97.47	845.7	98.2
10-Wed	Dry	26.42	31.37	18.66	8.5	0.00	0.00	0.00	0.00	6.6	6.7	7.0	5	3.5	771.3	98.18	3.0	661.1	98.18	661.1	98.6
11-Thu	Dry	27.18	32.12	19.91	8.1	0.05	0.00	0.00	0.00	6.6	7.3	7.0	4	4.0	906.6	97.29	3.8	861.2	97.29	861.2	97.6
12-Fri	Dry	26.09	30.70	20.69	8.0	0.10	0.00	0.00	0.00	4.1	7.9	7.1	10								
13-Sat	Dry	27.91	32.52	19.32	8.4	0.11	0.00	0.00	0.00	7.1	7.2	7.1									
14-Sun	Dry	25.91	33.05	19.99	8.0	0.02	0.00	0.00	0.00	7.1	7.2	7.2		8.4	1,814.8	93.26	9.1	1,966.0	93.26	1,966.0	94.2
15-Mon	Dry	25.15	29.60	18.25	7.8	0.14	0.00	0.00	0.00	7.1	7.2	7.2	23	13.2	2,768.4	90.73	12.3	2,579.6	90.73	2,579.6	92.6
16-Tue	Dry	25.00	30.29	17.68	7.9	0.17	0.00	0.00	0.00	7.1	7.2	7.0	12	9.4	1,960.1	93.98	7.2	1,501.4	93.98	1,501.4	94.0
17-Wed	Dry	25.04	29.74	18.23	7.8	0.11	0.00	0.00	0.00	7.1	7.2	7.1	26	6.7	1,399.4	94.90	5.9	1,232.3	94.90	1,232.3	95.9
18-Thu	Wet	34.53	72.10	18.18	7.9	0.01	0.00	0.00	0.03	6.9	7.1	7.1	31	15.3	4,405.5		19.6	5,643.6		5,643.6	
19-Fri	Wet	29.10	47.63	21.33	8.2	0.00	0.00	0.00	0.02	6.8	7.0	6.8	3								
20-Sat	Dry	26.99	32.58	19.72	8.8	0.01	0.00	0.00	0.00	6.9	7.0	6.9									
21-Sun	Dry	26.99	32.00	19.31	8.2	0.04	0.00	0.00	0.00	6.8	6.9	6.9		5.2	1,170.3	95.43	4.3	967.8	95.43	967.8	97.0
22-Mon	Dry	26.69	31.82	19.86	8.4	0.04	0.00	0.00	0.00	6.9	7.0	7.0	12	6.9	1,535.9	94.40	4.1	912.6	94.40	912.6	96.2
23-Tue	Dry	26.17	30.84	19.45	8.1	0.12	0.00	0.00	0.00	7.0	7.1	6.9	8	4.4	960.2	96.25	3.4	741.9	96.25	741.9	97.6
24-Wed	Dry	25.63	30.30	19.13	8.2	0.10	0.00	0.00	0.00	7.0	7.1	7.0	15	4.6	983.4	96.40	4.2	897.9	96.40	897.9	97.1
25-Thu	Wet	27.38	32.33	19.55	8.3	0.11	0.00	0.00	0.00	7.0	7.1	6.9	9	4.3	982.0		4.5	1,027.7		1,027.7	
26-Fri	Wet	26.35	29.35	20.13	8.1	0.17	0.00	0.00	0.00	7.0	7.1	6.9	1								
27-Sat	Dry	25.60	30.17	18.73	7.8	0.00	0.00	0.00	0.00	7.0	7.1	7.0									
28-Sun	Wet	34.40	60.47	18.90	8.1	0.00	0.01	0.00	0.09	6.8	7.1	7.0		8.8	2,524.3		13.6	3,901.2		3,901.2	
29-Mon	Dry	30.37	54.77	22.78	8.4	0.06	0.00	0.00	0.37	1.7	7.0	6.9	10	5.2	1,317.2	96.47	5.7	1,443.9	96.47	1,443.9	97.4
30-Tue	Dry	26.64	31.68	19.87	8.0	0.12	0.00	0.00	0.00	6.9	7.0	6.9	16	4.7	1,044.4	96.40	5.0	1,111.1	96.40	1,111.1	97.4
31-Wed	Wet	27.71	32.36	21.02	8.0	0.06	0.00	0.00	0.01	6.9	7.1	7.0	31	5.0	1,155.5		6.5	1,502.2		1,502.2	
Min		25.00	29.35	17.68	7.8	0.00	0.00	0.00	0.00	1.7	6.7	6.8	1	3.5	771	90.7	3.0	661	90.7	661	92.6
Max		34.53	72.10	24.08	8.8	0.26	0.01	0.37	0.37	7.1	7.9	7.2	31	15.3	4,405	98.2	19.6	5,644	98.2	5,644	98.6
Avg		27.56	35.26	19.76	8.2	0.07	0.000	0.02	0.02			7.0	12	6.0	1,419	95.8	6.0	1,448	95.8	1,448	96.8
Total		854.28											9		32,631			33,296		33,296	

Date	Total Nitrogen	TKN	Nitrate + Nitrite	Total Phosphorus
	(mg/L)	(mg/L)	(mg/L)	(mg/L)
01-Mon				
02-Tue				
03-Wed				
04-Thu				
05-Fri				
06-Sat				
07-Sun				
08-Mon	17.51	17.28	0.23	0.32
09-Tue				
10-Wed				
11-Thu				
12-Fri				
13-Sat				
14-Sun				
15-Mon				
16-Tue				
17-Wed				
18-Thu				
19-Fri				
20-Sat				
21-Sun				
22-Mon				
23-Tue				
24-Wed				
25-Thu				
26-Fri				
27-Sat				
28-Sun				
29-Mon				
30-Tue				
31-Wed				
Min	17.51	17.28	0.23	0.32
Max	17.51	17.28	0.23	0.32
Avg	17.51	17.28	0.23	0.32
Total	17.51	17.28	0.23	0.32

Lowell Regional Wastewater Utility - MA0100633



Date ( 3/1/2021 to 3/31/2021 )  
/ Eff Chlorine Residual (SCADA 15 Min Max)

Effluent Chlorine Residual

# Monthly Bypass Report

Date	Start Time	Start Influent Flow (MGD)	End Time	End Influent Flow (MGD)	Duration (Hours)	Volume (MG)
3/1/2021						
3/2/2021						
3/3/2021						
3/4/2021						
3/5/2021						
3/6/2021						
3/7/2021						
3/8/2021						
3/9/2021						
3/10/2021						
3/11/2021						
3/12/2021						
3/13/2021						
3/14/2021						
3/15/2021						
3/16/2021						
3/17/2021						
3/18/2021	06:01 pm	54.68			6.0	4.11
3/19/2021			12:09 am	48.4	0.2	0.24
3/20/2021						
3/21/2021						
3/22/2021						
3/23/2021						
3/24/2021						
3/25/2021						
3/26/2021						
3/27/2021						
3/28/2021	03:11 pm	55.93			4.3	1.73
3/29/2021			12:53 am	47.67	0.9	0.26
3/30/2021						
3/31/2021						



Lowell Wastewater Utility  
High Flow Management Monthly Summary  
January 2021 - December 2021

Date	Clean Water Discharge		Duck Island Rain		Treated High Flow			All Diversions		
	Flow (MG)	Peak Hour (MGD)	Rain Days	Rain Inches	Event (No.)	Duration (Hours)	Volume (MG)	Event (No.)	Duration (Hours)	Volume (MG)
Jan 2021	954	106.3	6	2.4	2	20.7	18.4	1	4.87	16.86
Feb 2021	754	104.1	11	2.2	1	5.1	9.5			
Mar 2021	891	72.4	7	1.9	3	8.1	4.1			
Apr 2021	348	56.5	1	0.4	1	0.7	0.6			
May 2021										
Jun 2021										
Jul 2021										
Aug 2021										
Sep 2021										
Oct 2021										
Nov 2021										
Dec 2021										
Total	2,946	339.3	25	6.9	7	34.5	32.6	1	4.9	16.9
Max	954	106.3	11	2.4	3	20.7	18.4	1	4.9	16.9

Date	Barasford Street		Beaver Brook		Merrimack Street		Read Street		Tilden Street		Walker Street		Warren Street		West Street	
	Event (No.)	Duration (Hours)	Volume (MG)	Event (No.)	Duration (Hours)	Volume (MG)	Event (No.)	Duration (Hours)	Volume (MG)	Event (No.)	Duration (Hours)	Volume (MG)	Event (No.)	Duration (Hours)	Volume (MG)	Event (No.)
Jan 2021	1	3.5	4.8	1	0.7	0.1	1	4.9	7.3				1	0.6	0.3	1
Feb 2021																
Mar 2021																
Apr 2021																
May 2021																
Jun 2021																
Jul 2021																
Aug 2021																
Sep 2021																
Oct 2021																
Nov 2021																
Dec 2021																
Total	1	3.5	4.8	1	0.7	0.1	1	4.9	7.3	0	0.0	0.4	1	0.6	0.3	1
Max	1	3.5	4.8	1	0.7	0.1	1	4.9	7.3	0	0.0	0.4	1	0.6	0.3	1